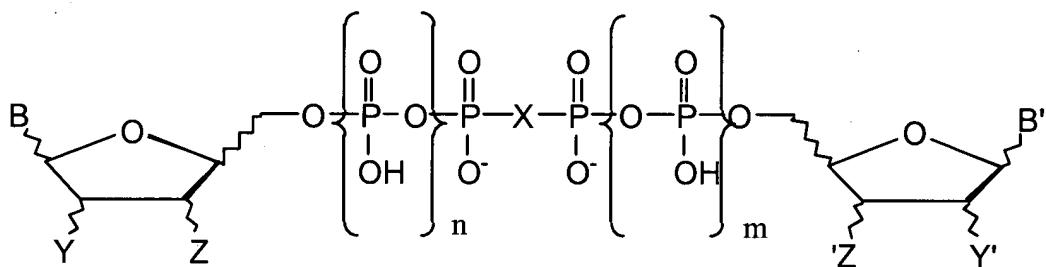


**In the Claims**

11. (Canceled).

12. (Original) A method of affecting the amount of or properties of the cervical and vaginal mucosa comprising administering an effective amount of a composition comprising a purinergic agent of Formula II, or pharmaceutically acceptable esters of salts thereof, to an individual in need of treatment thereof:

**Formula II**



wherein:

X is oxygen, methylene, difluoromethylene, imido;

n = 0, 1, or 2;

m = 0, 1, or 2;

n + m=0,1, 2, 3, or 4; and

B and B' are each independently a purine residue or a pyrimidine residue linked through the 9- or 1- position, respectively;

Z = OH or N<sub>3</sub>;

Z' = OH or N<sub>3</sub>;

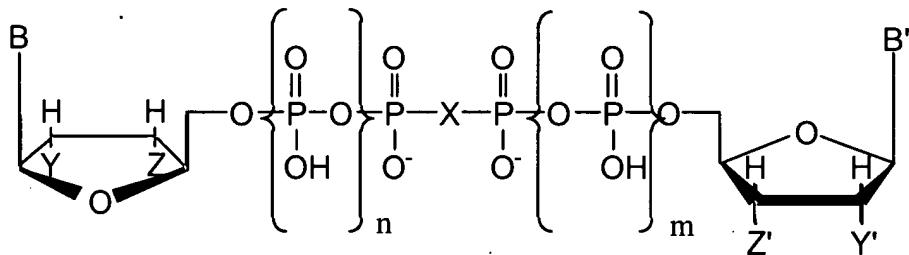
Y = H or OH;

Y' = H or OH;

provided that when Z is N<sub>3</sub>, Y is H and when Z' is N<sub>3</sub>, Y' is H.

13. (Currently Amended) The method of Claim 12, wherein the compounds of Formula II are those of Formula IIa:

Formula IIa



wherein:

X=O;

n+m=1 or 2;

Z, Z', Y, and Y'=OH;

B and B' are defined in Formulas IIc and IId, or

X=O;

n+m=3 or 4;

Z, Z', Y, and Y'=OH;

B=uracil;

B' is defined in Formulas IIc and IId; or

X=O;

n+m=1 or 2;

Z, Y, and Z'=OH;

Y'=H;

B=uracil;

B' is defined in Formulas IIc and IId; or

X=O;

n+m=0, 1, or 2;

Z and Y=OH;

Z'=N<sub>3</sub>;

Y'=H;

B=uracil;

B'=thymine; or

X=O;

n+m=0, 1, or 2;

Z and Z'=N<sub>3</sub>;

Y and Y'=H;

B and B'=thymine; or

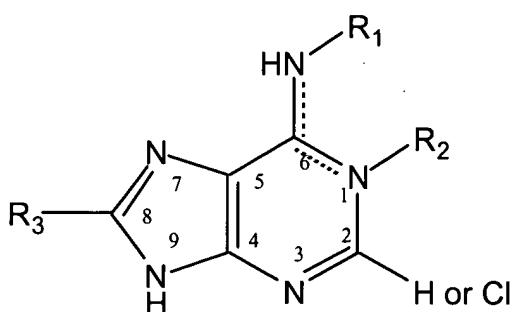
X=CH<sub>2</sub>, CF<sub>2</sub>, or NH;

n and m=1;

Z, Z', Y, and Y'=OH;

B and B' are defined in Formulas IIc and IId :

Formula IIc

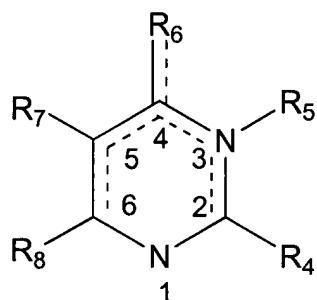


Wherein wherein R<sub>1</sub> of the 6-HNR<sub>1</sub> group and R<sub>3</sub> are chosen from the group consisting of:

- (a) arylalkyl (C<sub>1-6</sub>) groups with the aryl moiety optionally substituted,

(b) alkyl,  
(c) ~~(carbamoylmethyl)~~ carbamoylmethyl,  
(d)  $\omega$ -amino alkyl ( $C_{2-10}$ ),  
(e)  $\omega$ -hydroxy alkyl ( $C_{2-10}$ ),  
(f)  $\omega$ -thiol alkyl ( $C_{2-10}$ ),  
(g)  $\omega$ -carboxy alkyl ( $C_{2-10}$ ),  
(h) the  $\omega$ -acylated derivatives of (b), (c) or (d) wherein the acyl group is either acetyl, trifluoroacetyl, benzoyl, or substituted-benzoyl alkyl( $C_{2-10}$ ),  
(i)  $\omega$ -carboxy alkyl ( $C_{2-10}$ ) as in (e) above wherein the carboxylic moiety is an ester or an amide, and  
(j) hydrogen;  
 $R_2$  is O or is absent; or  
 $R_1$  and  $R_2$  taken together may form optionally substituted 5-membered fused imidazole ring;

Formula IIId



wherein:

$R_4$  is hydroxy, mercapto, amino, cyano, aralkoxy,  $C_{1-6}$  alkylthio,  $C_{1-6}$  alkoxy,  $C_{1-6}$  alkylamino or dialkylamino, wherein the alkyl groups of said dialkylamino are optionally linked to form a heterocycle;

$R_5$  is hydrogen, acyl,  $C_{1-6}$  alkyl, aroyl,  $C_{1-5}$  alkanoyl, benzoyl, or sulphonate;

$R_6$  is hydroxy, mercapto, alkoxy, aralkoxy,  $C_{1-6}$ -alkylthio,  $C_{1-5}$  disubstituted amino, triazolyl, alkylamino or dialkylamino, wherein the alkyl groups of said

dialkylamino are optionally linked to form a heterocycle or linked to N<sup>3</sup> to form an optionally substituted ring; or

R<sub>5</sub> - R<sub>6</sub> together forms a 5 or 6-membered saturated or unsaturated ring bonded through N or O at R<sub>6</sub>, wherein said ring is optionally substituted;

R<sub>7</sub> is selected from the group consisting of:

- (a) hydrogen,
- (b) hydroxy,
- (c) cyano,
- (d) nitro,
- (e) alkenyl, wherein the alkenyl moiety is optionally linked through oxygen to form a ring optionally substituted with alkyl or aryl groups on the carbon adjacent to the oxygen,
- (f) substituted alkynyl
- (g) halogen,
- (h) alkyl,
- (i) substituted alkyl,
- (j) perhalomethyl,
- (k) C<sub>2-6</sub> alkyl,
- (l) C<sub>2-3</sub> alkenyl,
- (m) substituted ethenyl,
- (n) C<sub>2-3</sub> alkynyl and
- (o) substituted alkynyl when R<sub>6</sub> is other than amino or substituted amino;

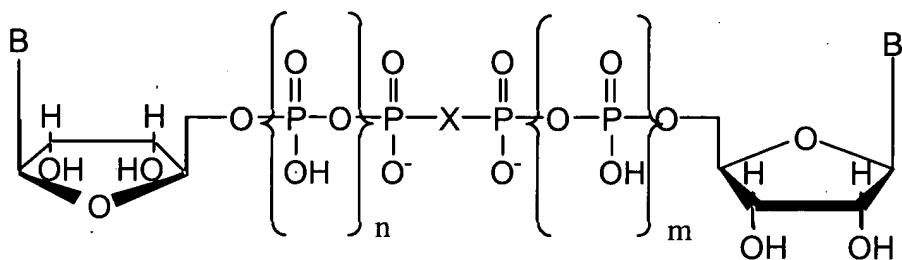
R<sub>8</sub> is selected from the group consisting of:

- (a) hydrogen,
- (b) alkoxy,
- (c) arylalkoxy,
- (d) alkylthio,
- (e) arylalkylthio,
- (f) carboxamidomethyl,
- (g) carboxymethyl,

- (h) methoxy,
- (i) methylthio,
- (j) phenoxy and
- (k) phenylthio.

14. (Original) The method of Claim 12, wherein the compounds of Formula II are those of Formula IIb:

Formula IIb



wherein:

X is oxygen, methylene, difluoromethylene, or imido;

n = 0 or 1;

m = 0 or 1;

n + m = 0, 1, or 2; and

B and B' are each independently a purine residue, as in Formula IIc as described in claim [[2]] 12, or a pyrimidine residue, as in Formula IId as described in claim [[2]] 12, linked through the 9- or 1- position, respectively; provided that when B and B' are uracil, attached at N-1 position to the ribosyl moiety, then the total of m + n equals 3 or 4 when X is oxygen.

15. (Original) The method of Claim 12, wherein the furanose sugar of Formula II is in the  $\beta$ -D-configuration.

16. (Canceled).